

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1-16 (Cancelled).

17. (Original) An apparatus for humidifying a hydrocarbon stream comprising:

a vessel which defines an interior cavity and having an inlet adjacent a lower end of the cavity for receiving a hydrocarbon stream;

a bed of a packing material in the cavity; and

water filling at least a portion of the bed.

18. (Original) The apparatus of claim 17, further including:

a second inlet in the vessel for adding water to the vessel.

19. (Original) The apparatus of claim 17, further including a return line for returning a portion of a hydrocarbon stream which has been humidified to the cavity.

20. (Original) The apparatus of claim 17 further including:

a mixer for mixing the humidified hydrocarbon stream with an unhumidified hydrocarbon stream to form a combined stream; and

a sensor for detecting a moisture content of at least one of the unhumidified hydrocarbon stream and the combined stream.

21. (New) The apparatus of claim 17, wherein the vessel includes an outlet through which the humidified hydrocarbon stream exits the vessel.

22. (New) The apparatus of claim 17, wherein the packing material is in the form of particles.

23. (New) The apparatus of claim 22, wherein the particles have a smaller average diameter adjacent a bottom of the bed than adjacent a top of the bed.

24. (New) The apparatus of claim 23, wherein the particles in the bottom layer have an average diameter of approximately 0.2 to 0.5 centimeters and the particles in the top layer have an average diameter of approximately 1 to 1.5 centimeters.

25. (New) The apparatus of claim 17, wherein the packing material comprises porcelain.

26. (New) The apparatus of claim 17, further including a source of the hydrocarbon stream fluidly connected with the inlet.

27. (New) The apparatus of claim 17, wherein the source includes at least one hydrocarbon from mono-unsaturated alkanes and conjugated dienes.

28. (New) The apparatus of claim 17, wherein the source of the hydrocarbon stream further includes a solvent in which the hydrocarbon is soluble.

29. (New) The apparatus of claim 17, further including a head space in the vessel above the bed and the water for allowing liquid water to fall out of the humidified hydrocarbon stream so that the humidified hydrocarbon stream is substantially free of undissolved water.

30. (New) The apparatus of claim 17, wherein the particles are spherical.

31. (New) A humidification apparatus comprising:
a vessel which defines an interior cavity and having an inlet adjacent a lower end of the cavity and an outlet adjacent an upper end of the cavity;
a bed of a packing material in the cavity, the packing material comprising

particles which are larger in size toward an upper end of the bed;
water filling a portion of the bed; and
a head space which spaces the outlet from the water and the packing material.

32. (New). The apparatus of claim 31, further including a liquid level gauge for adjusting a height of the water.

33. (New) An apparatus for humidifying a hydrocarbon stream comprising:
a vessel which defines an interior cavity, the vessel comprising a first inlet adjacent a lower end of the cavity for receiving a hydrocarbon stream, a second inlet for adding water to the vessel, and an outlet;
a bed in the cavity, the bed comprising a packing material and water which fills a portion of the bed; and
a head space in the cavity above the bed which allows liquid water to fall out of the hydrocarbon stream.